

ABSTRACT OF THE DISCLOSURE

An apparatus for applying different amounts of pressure to different locations of a backside of a semiconductor device structure during polishing thereof. The apparatus is configured to be associated with a wafer carrier of a polishing apparatus and includes pressurization structures configured to be biased against the backside of the semiconductor device structure during polishing thereof. The pressurization structures are independently movable with respect to one another. The amount of force or pressure applied by each pressurization structure to the backside of the semiconductor device structure is controlled by at least one corresponding actuator. The actuator may magnetically facilitate movement of the corresponding pressurization structure toward or away from the backside of the semiconductor device structure. The actuator may alternatively comprise a positive or negative pressure source. Systems including the pressure application apparatus, as well as differential pressure application methods and polishing methods are also disclosed.